Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 19. (Canceled).

20. (Currently Amended) A system for performing a maintenance test between LAN connecting devices in which a plurality of LAN connecting devices that ~~are connectable to a LAN and that are capable of recognizing a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]] are connected to each other through a circuit using an optical fiber as a physical medium configured such that communication is possible between the LAN connecting devices using an optical signal of a first input / output wavelength used in ~~for performing~~ ordinary LAN communication and an optical signal of a second input / output wavelength [[for]] used in maintenance test communication relating to communication on said circuit connecting the LAN connecting devices to each other,

wherein one of said LAN connecting devices comprises:

an optical multiplexer for collecting/multiplexing the optical signal of said first input / output wavelength and the optical signal of said second input / output wavelength and transmitting ~~them~~ the collected optical signals to said circuit;

a first communication data control part for performing ordinary LAN communication processing and outputting the ~~optical signal of the first input / output wavelength~~ communication data outputted by the LAN communication processing in the optical signal of said first input / output wavelength to said optical multiplexer; and

a first maintenance data control part for ~~outputting a maintenance signal for performing maintenance test processing of communication and for instructing the maintenance test at a frame of the OSI layer 2, to said optical multiplexer as the optical signal of the second input / output wavelength~~ constructing maintenance data instructing the maintenance test processing to the other of said LAN connecting devices with the signal of the layer 2 of the OSI layer so as to perform the maintenance test processing different from said LAN communication processing and outputting the maintenance data in the optical signal of said second input / output wavelength to said optical collector, and

wherein the other of said LAN connecting devices comprises:

an optical demultiplexer for separating/demultiplexing the optical signal transmitted by said circuit to said first input / output wavelength and said second input / output wavelength and ~~outputting each of them~~ distributing/outputting the separated first input / output wavelength and the second input / output wavelength;

a second communication data control part for performing the ordinary LAN communication processing by ~~the optical signal of the first input / output wavelength outputted~~ input of said communication data in the optical signal of said first input / output wavelength distributed/outputted by said optical demultiplexer; and

a second maintenance data control part ~~receiving a maintenance signal from the frame of said OSI layer 2, for performing said maintenance test processing of communication by the optical signal of the second input / output wavelength outputted~~ for performing the maintenance test processing of the device itself by input of said maintenance data constructed by the signal of the layer 2 of the OSI layer by the optical signal of said second input / output wavelength distributed/outputted by said optical demultiplexer,

wherein ~~the maintenance test is performed on a path between said LAN connecting devices by the maintenance signal from the frame of the OSI layer 2~~ said LAN connecting device performs the maintenance test processing by communication by the optical signal of said second input / output wavelength of said maintenance data constructed by the signal of the layer 2 of the OSI layer.

21. (Currently Amended) A system for performing a maintenance test between LAN connecting devices in which a plurality of LAN connecting devices that are connectable to a LAN and that ~~are capable of recognizing a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]] are connected to each other through a circuit using an optical fiber as a physical medium configured such that communication is possible between the LAN connecting devices using an optical signal of a first input / output wavelength ~~for performing~~ used in ordinary LAN communication and an optical signal of a second input / output wavelength ~~for notifying a communication state~~ used in alarm communication for notifying alarm information obtained in failure monitoring processing on said circuit connecting the LAN connecting devices to each other,

wherein one of said LAN connecting devices comprises:

an optical multiplexer for collecting/multiplexing the optical signal of said first input / output wavelength and the optical signal of said second input / output wavelength and transmitting ~~them~~ the collected optical signals to said circuit;

a first communication data control part for performing ordinary LAN communication processing and outputting the ~~optical signal of the first input / output wavelength~~ communication data outputted by the ordinary LAN communication processing in the optical signal of said first input / output wavelength to said optical multiplexer; and

a first maintenance data control part for performing failure monitoring processing ~~and outputting alarm information obtained by the failure monitoring processing and with which a failure content can be recognized at a frame of the OSI layer, to said optical multiplexer as the optical signal of the second input / output wavelength~~ different from the ordinary LAN communication processing, constructing the alarm information obtained by said failure monitoring processing with an intermittent pattern of the signal of the layer 2 of the OSI layer so that a failure content can be identified, and outputting the alarm information in the optical signal of said second input / output wavelength to said optical multiplexer, and

wherein the other of said LAN connecting devices comprises:

an optical demultiplexer for separating/demultiplexing the optical signal transmitted by said circuit to said first input / output wavelength and said second input / output wavelength and ~~outputting each of them~~ distributing/outputting the separated first input / output wavelength and the second input / output wavelength;

a second communication data control part for performing the ordinary LAN communication processing by ~~the optical signal of the first input / output wavelength outputted~~ input of said communication data in the optical signal of said first input / output wavelength distributed/outputted by said optical demultiplexer; and

a second maintenance data control part ~~receiving the alarm information from the frame of said OSI layer 2, for performing failure processing by the optical signal of the second input / output wavelength outputted by said optical demultiplexer~~ for performing said failure monitoring processing by input of said alarm information constructed with the intermittent pattern of the signal of the layer 2 of the OSI layer by the optical signal of said second input / output wavelength distributed/outputted by said optical multiplexer,

wherein ~~transmission of said alarm information from one of said LAN connecting devices to the other of said LAN connecting devices is performed by the frame of the OSI layer 2~~ said LAN connecting device performs said failure monitoring processing by

communication of said alarm information constructed by the intermittent pattern of the signal of the layer 2 of the OSI layer.

22. (Currently Amended) A system for performing a maintenance test between LAN connecting devices in which a plurality of LAN connecting devices that are connectable to a LAN and that ~~are capable of recognizing a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]] are connected to each other through a circuit using an optical fiber as a physical medium configured such that communication is possible between the LAN connecting devices using an optical signal of a first input / output wavelength ~~for performing~~ used in ordinary LAN communication and an optical signal of a second input / output wavelength ~~for notifying a state of the LAN connecting device~~ used in power-off state communication for notifying power-off information obtained in power-state monitoring processing on said circuit connecting the LAN connecting devices to each other,

wherein one of said LAN connecting devices comprises:

an optical multiplexer for collecting/multiplexing the optical signal of said first input / output wavelength and the optical signal of said second input / output wavelength and transmitting ~~them~~ the collected optical signals to said circuit;

a first communication data control part for performing ordinary LAN communication processing and outputting the ~~optical signal of the first input / output wavelength~~ communication data outputted by the ordinary LAN communication processing in the optical signal of said first input / output wavelength to said optical multiplexer; and

a first maintenance data control part for performing power-state monitoring processing ~~and for outputting a power-off signal obtained by the power-state monitoring processing and with which power-off can be recognized at a frame of the OSI layer 2 to said optical multiplexer as the optical signal of the second input / output wavelength~~ different from said LAN communication processing, constructing the power-off information obtained by said power-state monitoring processing with an intermittent pattern of the signal of the layer 2 of the OSI layer so that a power-off content can be identified, and outputting the power-off information in the optical signal by said second input / output wavelength to said optical multiplexer, and

wherein the other of said LAN connecting devices comprises:

an optical demultiplexer for separating/demultiplexing the optical signal transmitted by said circuit to said first input / output wavelength and said second input / output wavelength and ~~outputting each of them~~ distributing/outputting the separated first input / output wavelength and the second input / output wavelength;

a second communication data control part for performing the ordinary LAN communication processing by ~~the optical signal of the first input / output wavelength outputted~~ input of said communication data in the optical signal of said first input / output wavelength distributed/outputted by said optical demultiplexer; and

a second maintenance data control part ~~receiving a power-off signal from the frame of said OSI layer 2, for recognizing the power-off of one of said LAN connecting devices by the optical signal of the second input / output wavelength outputted~~ for performing said power-state monitoring processing by input of said power-off information constructed with the intermittent pattern of the signal of the layer 2 of the OSI layer by the optical signal of said second input / output wavelength distributed/outputted by said optical demultiplexer,

wherein ~~transmission of said power-off signal from one of said LAN connecting devices to the other of said LAN connecting devices is performed by the frame signal of the OSI layer 2~~ said LAN connecting device performs said power-state monitoring processing by communication of said power-off information constructed by the intermittent pattern of the signal of the layer 2 of the OSI layer.

23. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit, said system comprising:

means for recognizing, by using a test communication code being in a different form from an ordinary LAN communication code, said test communication code separately from an ordinary LAN communication and for separating an ordinary communication and a test communication from each other on the basis of code data;

path testing means for testing a path between said LAN connecting devices.

24. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit, said system comprising:

means for recognizing, by using an alarm communication code being in a different form from an ordinary LAN communication code, said alarm communication code separately

from an ordinary LAN communication and for separating an ordinary communication and an alarm communication from each other on the basis of code data; and

means for performing an alarm transfer between said LAN connecting devices.

25. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit, said system comprising:

recognition means for recognizing a type code of a test communication different from an ordinary LAN communication by utilizing a value not used in an ordinary LAN communication address or a length or a type code not existing in a protocol between terminals of a physical communication or between terminals of a logical communication, and a separation means for separating an ordinary LAN communication and said test communication from each other; and

securing means for securing a path between said LAN connecting devices by way of said test communication.

26. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit, said system comprising:

recognition means for recognizing a type code of an alarm communication different from an ordinary LAN communication by utilizing a length or a type code not existing in an ordinary LAN communication protocol between terminals of a physical communication or between terminals of a logical communication, and a separation means for separating an ordinary communication and said alarm communication from each other; and

alarm notification means for performing an alarm notification between said LAN connecting devices by way of said alarm communication.

27. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit using a twisted pair cable as a physical medium, said system comprising:

means for separating from each other the input/output speed of an ordinary communication and the input/output speed of a test communication between terminals of a physical communication or between terminals of a logical communication and performing a

test communication at the same time as an ordinary communication or at an optional time; and

connection confirmation means for performing connection confirmation by way of a test communication sent at regular or irregular intervals.

28. (Withdrawn) A system for performing maintenance between LAN connecting devices in which a plurality of LAN connecting devices connectable to a LAN are connected to each other through a circuit using a twisted pair cable as a physical medium, said system comprising:

means for separating from each other the input/output speed of an ordinary communication and the input/output speed of an alarm communication between terminals of a physical communication or between terminals of a logical communication and performing an alarm communication at the same time as an ordinary communication or at an optional time; and

alarm notification means for performing the alarm communication at regular or irregular intervals.

29. (Withdrawn) A method for performing maintenance between LAN connecting devices connected to a LAN, said method being provided with a system having test communication means for operating in parallel with an ordinary LAN communication independently of the said LAN communication and thereby monitoring an ordinary LAN communication signal and a test communication signal used in a test communication in a reception means for receiving communication information from a circuit and recognizing a test state by separating an ordinary communication state and a test communication state, and being provided with a means for transmitting and receiving said test signal,

said method comprising the steps of:

making a test monitoring device transmit a test signal to a LAN connecting device to be a tested device;

making said LAN connecting device transmit a test completion identifying response signal to said test signal to said test monitoring device;

making said test monitoring device confirm the normality on the basis of the state of reception of this response signal; and

securing a communication operation between said LAN connecting devices.

30. (Currently Amended) A LAN connecting device having a function to be connected to a LAN and a function to ~~recognize a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]], being connected to its opposite party LAN connecting device through a circuit using an optical fiber as a physical medium and being capable of communication with said opposite party LAN connecting device using an optical signal of a first input / output wavelength ~~for performing~~ used in ordinary LAN communication and an optical signal of a second input / output wavelength [[for]] used in maintenance test communication relating to communication on[[,]] said circuit, comprising:

an optical demultiplexer for separating/demultiplexing the optical signal transmitted by said circuit to said first input / output wavelength and said second input / output wavelength and ~~outputting each of them~~ distributing/outputting the separated first input / output wavelength and the second input / output wavelength;

a communication data control part for performing the ordinary LAN communication processing by ~~the optical signal of the first input / output wavelength outputted~~ input of said communication data by the optical signal of said first input / output wavelength distributed/outputted by said optical demultiplexer; and

a maintenance data control part ~~receiving a maintenance signal with which a maintenance test is instructed at a frame of the OSI layer 2, for performing maintenance test processing of communication by the optical signal of the second input / output wavelength outputted~~ performing the maintenance test processing of the device itself by input of said maintenance data constructed by the signal of the layer 2 of the OSI layer by the optical signal of said second input / output wavelength distributed/outputted by said optical demultiplexer,

wherein [[a]] said maintenance test processing is performed ~~for a connection path with said opposite party LAN connecting device by the maintenance signal from the frame of the OSI layer 2~~ by communication by the optical signal of said second input / output wavelength of said maintenance data constructed by the signal of the layer 2 of the OSI layer with the opposite party LAN connecting device.

31. (Currently Amended) A LAN connecting device having a function to be connected to a LAN and a function to ~~recognize a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]], being

connected to its opposite party LAN connecting device through a circuit using an optical fiber as a physical medium and being capable of communication with said opposite party LAN connecting device using an optical signal of a first input / output wavelength ~~for performing~~ used in ordinary LAN communication and an optical signal of a second input / output wavelength ~~for notifying a communication state on~~ used in alarm communication notifying alarm information obtained in failure monitoring processing on[[,]] said circuit, comprising:

an optical multiplexer for collecting/multiplexing an optical signal of said first input / output wavelength and an optical signal of said second input / output wavelength and transmitting ~~them~~ the collecting optical signals to said circuit;

a communication data control part for performing the ordinary LAN communication processing and outputting the ~~optical signal of the first input / output wavelength~~ communication data outputted by the ordinary LAN communication processing in the optical signal of the first input / output wavelength to said optical multiplexer; and

a maintenance data control part for performing failure monitoring processing ~~and outputting alarm information obtained by the failure monitoring processing and with which a failure content can be recognized at a frame of the OSI layer 2 to said optical multiplexer as the optical signal of the second input / output wavelength~~ different from said LAN communication processing, constructing the alarm information obtained by said failure monitoring processing with an intermittent pattern of the signal of the layer 2 of the OSI layer so that a failure content can be identified, and outputting the alarm information in the optical signal of said second input / output wavelength to said optical multiplexer so that the alarm information is transmitted to said opposite party LAN connecting device~~,~~

~~wherein transmission of said alarm information to said opposite party LAN connecting device is performed by the frame of the OSI layer 2~~.

32. (Currently Amended) A LAN connecting device having a function to be connected to a LAN and a function to ~~recognize a signal up to the~~ perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer [[2]], being connected to its opposite party LAN connecting device through a circuit using an optical fiber as a physical medium and being capable of communication with said opposite party LAN connecting device using an optical signal of a first input / output wavelength ~~for performing~~ used in ordinary LAN communication and an optical signal of a second input / output wavelength ~~for notifying the state of its own device on, said circuit~~ used in power-off state

communication notifying power-off information obtained in power-state monitoring processing on said circuit, comprising:

an optical multiplexer for collecting/multiplexing an optical signal of said first input / output wavelength and an optical signal of said second input / output wavelength and transmitting ~~them~~ the collecting optical signals to said circuit;

a communication data control part for performing the ordinary LAN communication processing and outputting the ~~optical signal of the first input / output wavelength~~ communication data outputted by the ordinary LAN communication processing in the optical signal of the first input / output wavelength to said optical multiplexer; and

a maintenance data control part for performing power-state monitoring processing ~~and outputting a power-off signal obtained by the power-state monitoring processing and with which power-off can be recognized at frame of the OSI layer 2, to said optical multiplexer as the optical signal of the second input / output wavelength~~ different from said LAN communication processing, constructing the power-off information obtained by said power state monitoring processing with an intermittent pattern of the signal of the layer 2 of the OSI layer so that a power-off content can be identified, and outputting the power-off information in the optical signal of said second input / output wavelength to said optical multiplexer so that the power-off information is transmitted to said opposite party LAN connecting device~~,~~

~~wherein transmission of said power-off signal to said opposite LAN connecting device is performed by the frame of the OSI layer 2~~.

33. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit, said LAN connecting device comprising:

recognition means for recognizing a test communication code being in a different form from an ordinary LAN communication code;

separation means for separating an ordinary communication and a test communication from each other on the basis of code data when recognizing said test communication code by means of said recognition means; and

test means for testing a path to said opposite party device by way of said test communication code.

34. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit, said LAN connecting device comprising:

recognition means for recognizing an alarm communication code being in a different form from an ordinary LAN communication code;

separation means for separating an ordinary communication and an alarm communication from each other on the basis of code data when recognizing said alarm communication code by means of said recognition means; and

alarm transfer means for alarm-transferring a device status to said opposite party device by way of said alarm communication code.

35. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit, said LAN connecting device comprising:

recognition means for recognizing, as a test communication code, a value not used in an ordinary communication address or a length or a type code not existing in a protocol between terminals of a physical communication or between terminals of a logical communication;

separation means for separating an ordinary communication and said test communication from each other by means of said recognition means; and

test means for performing a test between said LAN connecting device and said opposite party device by way of said test communication at regular or irregular intervals.

36. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit, said LAN connecting device comprising:

recognition means for recognizing, as an alarm communication code, a length or a type code not existing in an ordinary LAN communication protocol between terminals of a physical communication or between terminals of a logical communication;

separation means for separating an ordinary communication and said alarm communication from each other by means of said recognition means; and

alarm notification means for notifying said opposite party device of a device status by way of said alarm communication.

37. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit using a twisted pair cable as a physical medium, said LAN connecting device comprising:

separation means for separating from each other the input/output speed of an ordinary communication and the input/output speed of a test communication between terminals of a physical communication or between terminals of a logical communication; and

test means for performing a test communication at the same time as an ordinary LAN communication or at an optional time,

wherein said LAN connecting device performs a connection confirmation by way of the test communication at regular or irregular intervals.

38. (Withdrawn) A LAN connecting device connectable to a LAN and connected to its opposite party device through a circuit using a twisted pair cable as a physical medium, said LAN connecting device comprising:

separation means for separating from each other the input/output speed of an ordinary communication and the input/output speed of an alarm communication between terminals of a physical communication or between terminals of a logical communication; and

alarm communication means for performing an alarm communication at the same time as an ordinary communication or at an optional time,

wherein said LAN connecting device notifies its opposite party device of a device status by way of the alarm communication.